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### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Appli	cant's c	or age	nt's file reference		Se Se	e Notification	of Transmittal of Internation	al
C1435.01/P				FOR FURTHER AC			amination Report (Form PCT	
International application No.				International filing date (d	lay/month/ye	ar)	Priority date (day/month/ye	ar)
PCT/GB 03/04486 15.10				15.10.2003			16.10.2002	
	International Patent Classification (IPC) or both national classification and IPC							
G02	:B21 <i>/</i> 0	10					•	
	Applicant							
PEF	PERKINELMER UK LIMITED et al.							
1.	. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.							
	Auti	orney c		applicant according to 7				
2.	This	REPO	ORT consists of a total of	of 6 sheets, including th	is cover sn	eet.		
	$\boxtimes$	This	report is also accompa	nied by ANNEXES, i.e.	sheets of th	e description	on, claims and/or drawing	s which have
1		beer (see	i amended and are the l Rule 70.16 and Section	basis for this report and n 607 of the Administrati	or sheets c ve Instructi	ontaining r ons under t	ectifications made before the PCT).	this Authority
	Thes	` e anr	nexes consist of a total of	of 6 sheets.			•	1
]	11100	o am	ickes condict of a total c	5. 5 5.155tG.				
3.	This	repor	t contains indications re	elating to the following ite	ems:			
	1	$\boxtimes$	Basis of the opinion					
	II 🗆 Priority							
	Ш	$\boxtimes$		•	ovelty, inve	ntive step a	and industrial applicability	
	IV   Lack of unity of invention							
	V 🛮 Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement					applicability;		
	VI Certain documents cited							
	VII  Certain defects in the international application							
	VIII   Certain observations on the international application							
· ·								
Date	Date of submission of the demand				Date of co	mpletion of ti	nis report	
09.05.0004				04.00.00				
08.05.2004				24.02.20	105			
Name and mailing address of the international				Authorized	Officer		chas Petenten	
preliminary examining authority:  ————— European Patent Office - P.B. 5818 Patentiaan 2								Je Mile
NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo ni				Ward, S				
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### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/GB 03/04486

I.	<b>Basis</b>	of the	report
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1. With regard to the **elements** of the international application (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)):

	Des	Description, Pages						
	1-3	4	as origi	inally filed				
	Cla	ims, Numbers						
	1-3	1	filed wi	filed with telefax on 27.01.2005				
	Dra	wings, Sheets						
	1/15	5-15/15	as origi	inally filed				
<ol><li>With regard to the language, all the elements marked above were available or furnished to the language in which the international application was filed, unless otherwise indicated under this</li></ol>				to this Authority in the r this item.				
	The	hese elements were available or furnished to this Authority in the following language: , which is:						
		the language of a tra	anslation furnish	ed for the purposes of the international search (u	inder Rule 23.1(b)).			
				ternational application (under Rule 48.3(b)).	. ,,			
		the language of a tra Rule 55.2 and/or 55.	anslation furnish 3).	ed for the purposes of international preliminary e	xamination (under			
<ol><li>With regard to any nucleotide and/or amino acid sequence disclosed in the international apprinternational preliminary examination was carried out on the basis of the sequence listing:</li></ol>				al application, the				
		contained in the inte	rnational applica	ation in written form.				
		filed together with the	e international a	pplication in computer readable form.				
		furnished subsequently to this Authority in written form.						
		furnished subsequently to this Authority in computer readable form.						
		The statement that to in the international a	he subsequently pplication as file	furnished written sequence listing does not go bed has been furnished.	peyond the disclosure			
		The statement that the listing has been furnitude.	he information re ished.	ecorded in computer readable form is identical to	the written sequence			
4.	The	amendments have re	esulted in the ca	incellation of:				
		the description,	pages:					
	$\boxtimes$	the claims,	Nos.:	32-172				
		the drawings,	sheets:					

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

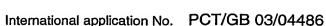
PCT/GB 03/04486

5.	This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).						
		(Any replacement sheet conta report.)	ining s	euch amendn	nents must be referred to under item 1 and annexed to this		
6.	Add	dditional observations, if necessary:					
III.	Non	n-establishment of opinion w	ith reg	ard to nove	lty, inventive step and industrial applicability		
<ol> <li>The questions whether the claimed invention appears to be novel, to involve an inventive step (to be obvious), or to be industrially applicable have not been examined in respect of:</li> </ol>					to be novel, to involve an inventive step (to be non- n examined in respect of:		
□ the entire international application,							
	×	elaims Nos. 2-15, 17-31					
		because:					
the said international application, or the said claims Nos. relate to the follonot require an international preliminary examination (specify):			ns Nos. relate to the following subject matter which does on (specify):				
		the description, claims or drawings (indicate particular elements below) or said claims Nos. are so unclear that no meaningful opinion could be formed (specify):					
		the claims, or said claims Nos. could be formed.	. are s	o inadequate	ly supported by the description that no meaningful opinion		
	$\boxtimes$	no international search report	has be	en establish	ed for the said claims Nos. 2-15, 17-31		
2.	<ol><li>A meaningful international preliminary examination cannot be carried out due to the failure of the nucleoti or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:</li></ol>			nnot be carried out due to the failure of the nucleotide and adard provided for in Annex C of the Administrative			
		the written form has not been furnished or does not comply with the Standard.					
		the computer readable form ha	as not	been furnish	ed or does not comply with the Standard.		
٧.	Rea cita	easoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; ations and explanations supporting such statement					
1.	Stat	Statement					
	Novelty (N)		Yes: No:	Claims Claims	1,16		
	Inve	ntive step (IS)	Yes: No:	Claims Claims	1,16		
	Indu	strial applicability (IA)	Yes: No:	Claims Claims	1,16		

2. Citations and explanations

see separate sheet

#### **INTERNATIONAL PRELIMINARY EXAMINATION REPORT - SEPARATE SHEET**



#### Re Item V

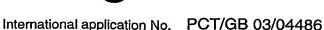
Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1. For the reasons mentioned under item III, the reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability is limited to claims 1 and 16 (based on claims 1 and 97 as originally filed).
- 2. Reference is made to the following documents:

D2: US20020097490 A

D3: US4566029 A D4: US4910606 A D5: JP2266674 A

- 3.1 The subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT. The document D2 discloses (see e.g. figure 19): A method of imaging light from a specimen (40) in which excitation light passes to the specimen via a confocal scanning system and light emitted by luminescence (see paragraphs [0221], [0222]) of the specimen passes in the other direction via the scanning system to an image capture device (46) having a sensor having discrete spatially distinct light sensitive regions (a CCD camera, see paragraph [0221]), and the scanning system is operated so as to scan the whole of an area of interest of the specimen, wherein the scanning system and the image capture device are controlled by a controller (86,78), so that the light emitted from the specimen is incident on the image capture device for a specific time period equal to that required for scanning the whole of the area of interest n times, where n is a whole number equal to or greater than 1 (i.e. the time periods determined by sectors 102a,102b etc. in fig 20).
- 3.2 A further feature of claim 1 is that "the scanning system, and the excitation light and/or the image capture device are controlled by a controller programmed to act as a state machine". The term "state machine" refers to a very general model in computer science which may be implemented in many ways. The application gives one detailed implementation of a state machine (page 26, final paragraph, pages 27-32 and fig 4). However, many other implementations are possible, and in particular it is well known that a general purpose digital computer can be regarded as satisfying all the defining criteria of a "state machine", and therefore one possible implementation of a "state machine" is a



computer, e.g. computer (18) in figure 19 of D2. Hence in D2 the scanning system and the

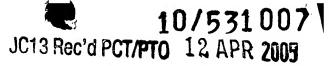
image capture device are controlled by a controller which is programmed to act as a state machine.

- 3.3 Claim 1 therefore differs from D2 in that the scanning system and the excitation light and/or the image capture device are controlled by a controller, so that the light emitted from the specimen is only incident on the image capture device for a specific time period equal to that required for scanning the whole of the area of interest n times, where n is a whole number equal to or greater than 1.
- 3.4 In D2, outside the scanning periods relatively little light will be reflected from the disk to the image capture device (as a result of the black sectors, e.g. 102d,102e,102f in fig 20), but other light (e.g stray light coming directly from the source (30) in fig 19) may still still be incident on the image capture device even in the non-scanning periods.
- 3.5 It is commonly known in the field of video imaging that solid state image capture devices. such as the CCDs of D2, suffer from a problem referred to as "smear", "dark charge" or "dark current", whereby during the charge transfer period when the camera should not be performing an exposure operation, light incident on the device nevertheless results in some extra unwanted charge being produced which is detrimental to the image. The problem associated with claim 1 may therefore be seen as reducing image errors (see the description of the present application, page 6, paragraph 2).
- 3.6 A solution to this problem is also well known in the art, namely to allow light to be incident on the image capture device only in the exposure periods, and to prevent light from being incident on the image capture device in the non-exposure periods. In implementing such a solution in the context of D2, it would be obvious for the skilled person to use the control arrangements (78,86) to apply the appropriate synchronization signals. Hence, starting from D2 and applying this commonly known solution to overcome the above-mentioned problem of "smear", the person skilled in the art would arrive, in an obvious manner, at the features of claim 1. Hence claim 1 lacks inventive step (Article 33(3) PCT).
- 3.7 For purposes of illustration, the following documents provide examples of overcoming the problem of "smear" by preventing light from being incident on the image capture device in the non-exposure periods:

# INTERNATIONAL PRELIMINARY InterrEXAMINATION REPORT - SEPARATE SHEET

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- D3: uses rotary chopper (see abstract, figures).
- D4 uses LC, PLZT, mechanical or rotary shutter (see column 6, lines 28-33)
- D5 uses LC shutter (see abstract, figures).
- 4. The features of Independent apparatus claim 16 correspond to those of method claim 1, and hence claim 16 does not involve an inventive step in the sense of Article 33(3) PCT for the reasons given above, *mutatis mutandis*.
- 5. Furthermore, it is pointed out that claim 1 implies that light is only incident on the image capture device for "a specific time period". In the description it appears that light is incident on the image capture device during several time periods corresponding to periodic exposures (see e.g fig 6a). This contradiction between the claims and description is contrary to Article 6 PCT.



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Minnie Wilson

(Typed or printed name of person mailing paper or fee)

(Signature of person mailing paper or fee)